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A BROWSER REWIND AND REPLAY FEATURE
FOR TRANSIENT MESSAGES WHEREIN THE MESSAGES
ARE STORED AUTOMATICALLY WHEN THEY ARE INITIALLY RENDERED
AND REPLAYED WHEN SELECTED

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10   BACKGROUND OF THE INVENTION

Field of the Invention

This invention relates to displaying content retrieved
15 from a server in a computer network by a user using a
browser application on a client device, and more
specifically to a system, method, and program for enabling
transitory content that has been dynamically displayed
within the browser to be redisplayed to the user at the
20 user's command.

Description of the Related Art

The Internet, initially referred to as a collection of
"interconnected networks", is a set of computer networks,
possibly dissimilar, joined together by means of gateways
25 that handle data transfer and the conversion of messages
from the sending network to the protocols used by the

receiving network. When capitalized, the term "Internet" refers to the collection of networks and gateways that use the TCP/IP suite or protocols.

5   Currently, the most commonly employed method of transferring data over the Internet is to employ the World Wide Web environment, referred to herein as "the Web". Other Internet resources exist for transferring information, such as File Transfer Protocol (FTP) and Gopher, but have not achieved the popularity of the Web. In the Web

10 environment, servers and clients effect data transfer using the Hypertext Transfer Protocol (HTTP), a known protocol for handling the transfer of various data files (e.g., text, still graphic images, audio, motion video, etc.).

       A Web browser on the client enables a user to specify a

15 Web location through a displayed link or by inputting the URL of the location. The Web browser sends the URL request using the HTTP protocol which defines the way in which the Web browser and the Web server communicate with one another. The request is sent to the Internet which determines which

20 server to send the request to. A Web server receives the request using the HTTP protocol; and sends the requested home page, document, or object to the Web browser client. The content is displayed on the client's computer screen through the Web browser.

25   In some situations, the requested content will contain other embedded objects that are specified by a different URL. These other objects may be located at a different server than the server at which the originally requested content resides. After receiving the originally requested

30 content and a URL of an embedded object, the Web browser

sends out a request to the Internet for this other object. The Web browser then embeds this other object/content into the original document as specified by the HTML tags in the original document.

5   When a user is browsing or accessing Web pages, the Web browser itself, and/or the Web pages being accessed, may include advertisements, or promotional or informational messages. The words "banner advertisements" or "messages" or "ads" will be used interchangeably herein to refer to

10 these advertisements or messages. Typically, banner advertisements are displayed in some portion of the browser or in a separate window other than the window displaying the requested content. An Internet Service Provider (ISP) or On Line Service may cause banner advertisements to be displayed

15 on the client's Web browser independently of any specific content or Web page being accessed. That is, the messages are not associated with or dictated by the content being displayed and thus appear to be randomly generated.

Advertisements can also appear within a given portion

20 of a Web page. Owner's of Web pages may sell banner space within their Web page to advertisers to generate revenue. Owner's of Web pages may also utilize their own advertising. Also, owners of search engines generate revenue by displaying banner advertisements on their home page and

25 along with any displayed search results. Sometimes the content of the banner advertisements are geared to a targeted audience as made evident by the subject matter being searched or by information that may be accessible in cookies stored at the client.

The HTML structure of Web documents in general enables
advertisements or other objects to be embedded within a Web
page or document. To take advantage of this feature, some
Web sites configure their pages such that there is a

5 consistent area on each page where advertisements are
displayed. Web page content is then formatted around these
predefined areas. Typically, the predefined area has its
own URL which is different than the URL used to get the Web
page content. The URL for the predefined area usually

10 retrieves an advertisement from a server especially designed
to deliver advertisements. As such, when a first URL is
used to request a new page from a given Web site, the URL
for the predefined area is used to get an advertisement to
be displayed in the predefined area. The advertisement is

15 placed in the same position on the Web page, and the content
that was retrieved may be modified to fit around this
advertisement area. The advertisement server may provide a
different advertisement even though the same URL for the
advertisement server is being used. As such, each time the

20 same Web page is accessed, a different advertisement may
appear. The displayed messages may appear to be dynamically
or randomly generated. As such, these banner advertisements
are referred to herein as being dynamically and/or randomly
generated. That is, a same advertisement does not

25 necessarily appear each time a same Web page is accessed.

The dynamic and random nature of advertisements can be
caused by any one of several factors. For example, the
embedded object containing advertisement content may be a
multimedia object. Not only is such a multimedia object

30 enabled to contain a sequence of static frames played at a

given number of frames per second to give a moving picture
affect, but the multimedia object may contain a sequence of
different advertisements displayed one after the other.
Also, as a user accesses different Web pages, each web page
5 may display different advertisements. Also, for a given URL
for an embedded object within a given Web page, a server can
be constantly changing the advertisement content associated
with the given URL. This enables the server to bring in
advertising dollars from as many different advertisers as
10 possible by dispersing advertising time and space for any
given highly visited Web site amongst the many different
advertisers.

It should be noted that although the term randomly
generated is used because the advertisements may be
15 different each time a same page is accessed, they may not be
truly randomly generated by the advertisement server. That
is, the advertisement server may have a very specific
algorithm for determining which advertisement to send
depending upon a time of the request, the content being
20 requested, and/or one or more attributes of the requester.
In other words, target advertising may be used to gear
certain advertising to certain types of users at certain
times of the day and for certain types of content being
requested. In this respect, the advertising is not randomly
25 generated, but generated pursuant to a specific algorithm.
Nevertheless, the term randomly generated or dynamically
generated is used interchangeably to mean that the
advertisement may change independently of any changed or
unchanged Web page content. In other words, different
30 requests for a given URL for a specific Web page will not

necessarily result in a same advertisement being displayed within that Web page each time that it is requested and rendered to the display.

As such, if a user "misses" an advertisement, the user
5   may not necessarily be able to just request the same Web page and expect to get back the same advertisement that was previously rendered with a previous rendering of that Web page.

In addition, not only are these advertisements
10 dynamically and randomly generated as discussed above, but these advertisements or messages also appear and disappear very quickly on the display screen. As such, they are also referred to herein as being transient or transitory banner advertisements or messages.

15   As such, these dynamically generated transient advertisements have an inherent problem as made evident in the situation where a user may be interested in a promotional message at a particular instance. Because these messages appear and disappear rather quickly, by the time a
20 user tries to select a particular promotional message link, the message may have already flashed by as a different message appears. Hence, the user misses the desired links. This can be especially problematic for users having physical or mental disabilities that hinder the user from being able
25 to respond quickly to these transient messages. As discussed above, because of the dynamic and random nature of the advertisements, a user can not just request the original document again and expect to see the same advertisement embedded therein. Consequently, a specific advertiser that

the user was initially interested in may have lost a
potential customer.

For example, Fig. 1A displays a Web page 100 with a
message 101 appearing above the article to enroll in a
5 Merryll Lynch program. Fig. 1B displays the same Web page
100 with a different message 102 appearing above the article
to apply for a Yahoo/Visa card. The Yahoo/Visa message in
Fig. 1B appears quickly, and thus the Merryll Lynch message
in Fig. 1A is missed.

10   One solution to help users deal with transitory
advertisements is called Banner Console by i-LOR; and it is
described on the World Wide Web at i-lor.com/bannerconsole.
A tool is added to a banner ad that allows the user to click
once to enable the user to return to the banner ad later.
15 The banner ad is saved and its image is listed in a separate
window for later selection by a user. Multiple ads can be
selected. Each ad selected by the user is added to the list
of ads in the separate window.

Another solution is provided in copending patent
20 application Serial Number (AUS919990895US1) filed April 27,
2000, titled "METHOD, SYSTEM, AND PROGRAM FOR SAVING OBJECT
CONTENT IN A REPOSITORY FILE" and commonly assigned to IBM
Corporation in which a displayed advertisement object can be
selected by a user and appended to a repository file of
25 similarly selected objects.

A problem with the above solutions, however, is that
they require that a user view each ad as it is quickly
displayed in order to make the decision of whether or not
the user may want to view it later. This distracts the user
30 from the current Web page that was requested by the user.

The above solutions also do not solve the problem of a user reading the requested page content and missing an advertisement by not clicking on it.

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SUMMARY OF THE INVENTION

It is therefore desirable to enable a user to view, at a later time, transitory advertisements that a user may have missed.

The system, method, and program of the present invention each comprise saving multimedia objects that have been rendered by the Web browser within a configurable amount of time, displaying the list of saved multimedia objects, and allowing the multimedia objects to be rewound and replayed. The multimedia object may be requested through an URL, e.g., when embedded within another document, or be received via pull or push techniques from a server. The multimedia object may be one or more advertisements or other transient message. The multimedia objects may encompass video, streaming video, audio, animation, and/or a sequence of images including a sequence of images displayed by push techniques from a server, etc..

More specifically, the browser stores each multimedia object in a chronological list, during a configurable duration of time, as each multimedia object is rendered at the client. By selecting the advertisement area, such as by a right mouse click, or other predefined user action, a menu

appears having the functional selections of stop, play, rewind, forward skip, reverse skip, etc. If a user selects "play", the multimedia objects are rendered to the screen in chronological order from the beginning of the list or from a

5   current position in the list. If a user selects "rewind", the multimedia objects are rendered to the screen in reverse chronological order beginning from the last object stored in the list or from a current position in the list. If a user selects "forward skip", a next object in the list becomes a

10 current position. If a user selects "reverse skip" a previous object in the list becomes a current position. Movement through the list can occur through repeated selection of a given skip button. As such, a user can replay at a later time some or all of the stored multimedia

15 objects.

    Another embodiment of the invention is described in a copending patent application having Serial Number (Internal Docket Number AUS920010005US1) and filed on even date herewith and commonly assigned, and which is incorporated

20 herein by reference. Instead of saving the multimedia objects, only screen captures of the various multimedia objects are saved at configurable time intervals. The screen captures contain the necessary links to access the advertiser. Upon playback the user will only see the stored

25 screen captures. The user will not see the actual replaying of the multimedia object. Nevertheless, the user will have various identifiable snapshots of the advertisements and access to the necessary links to get back to a desired advertiser.

An advantage of the embodiments is that a user can replay transitory content that has been missed. A further advantage is that the content can be replayed at a speed that is different than originally rendered. This enables a

5 person with a cognitive disability to replay the content at a slower speed, if desired.

10   BRIEF DESCRIPTION OF THE DRAWINGS

For a more complete understanding of the present invention and the advantages thereof, reference should be made to the following Detailed Description taken in

15 connection with the accompanying drawings in which:

Figs. 1A and 1B are examples of transitory messages dynamically displayed in a Web browser as known in the art;

Fig. 2 illustrates a network environment of a preferred embodiment of the invention;

20   Fig. 3 illustrates an external representation of a browser window displayed to a user and a displayed list of stored multimedia objects;

Fig. 4 illustrates a network configuration of an embodiment of the invention having the rewind and replay

25 feature at a server to access missed links that were dynamically and transiently displayed in browsers on a client side; and

Fig. 5 illustrates a browser at a client having an advertisement sent from the server with rewind and replay

30 controls.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

5   In the following description, reference is made to the
accompanying drawings which form a part hereof, and which
illustrate several embodiments of the present invention. It
is understood that other embodiments may be utilized and
structural and operational changes may be made without
10 departing from the scope of the present invention.

       Fig. 2 illustrates a computing environment in which
preferred embodiments are implemented. The computing
environment 2 includes at least one client computer 4
including a browser program or viewer program 6, such as the
15 Microsoft Explorer or Netscape Navigator, that is capable of
retrieving files from servers 11, 12, 13 over a network 10.
The client computer 4 may comprise any computer system known
in the art capable of executing a browser program. The
servers 11, 12, 13 may comprise any computer system known in
20 the art capable of maintaining files and making such files
accessible to remote computers. The browser 6 and servers
11, 12, 13 communicate using a document transfer protocol
such as the Hypertext Transfer Protocol (HTTP), or any other
document transfer protocol known in the art, such as FTP,
25 Gopher, WAIS, etc. The network 10 may be made up of a
TCP/IP network, such as the Internet and World Wide Web, or
any network system known in the art, e.g., LAN, Ethernet,
WAN, System Area Network (SAN), Token Ring, etc.

       The client computer 4 may be, but is not limited to, a
30 personal computer, laptop, workstation, mainframe or hand

held computer including palmtops, personal digital
assistants, smart phones, cellular phones, etc. Client
computer includes processor 40 and memory 50. Memory 50
includes volatile or nonvolatile storage and/or any

5 combination thereof. Volatile memory may be any suitable
volatile memory device, e.g., RAM, DRAM, SRAM, etc..
Nonvolatile memory may include storage space 12, e.g., via
the use of hard disk drives, tapes, etc., for data,
databases, and programs. The programs in memory include an

10 operating system 30 and application programs 20 including a
browser program 6 and software units 21-29 for displaying
text and various types of multimedia objects as further
discussed below. The browser program 6 displays a graphical
user interface in which content from a file downloaded from

15 one of the servers 11, 12, 13, such as a HTML page, is
displayed. The browser GUI displays graphical buttons to
perform operations related to the files in storage as
further described herein.

The client computer 4 includes output devices (not

20 shown) including a display for displaying the browser GUI
and Web page and object content. The client computer also
includes at least one input device (not shown) through which
the user may enter input data to control the operation of
the browser program 6, such as a keyboard, mouse,

25 pen-stylus, touch sensitive screen, voice decoder for
decoding voice commands, etc. In preferred embodiments, a
user at the client computer 4 can input commands to control
the browser program 6 through the graphical user interface
(GUI) generated by the browser 6 or input device controls,

30 such as keyboard keys, mouse buttons, touch pad regions,

that are programmed to cause the browser to perform specific operations.

The exemplary embodiment shown in Fig. 2 is provided solely for the purposes of explaining the preferred

5 embodiments of the invention; and those skilled in the art will recognize that numerous variations are possible, both in form and function.

Fig. 3 illustrates an external representation of a browser window 300 having a URL field 301, a visual

10 multimedia object area 302, and text 303. The object area 302 may support multimedia objects such as images, video, audio, graphics, and text. The software that enables this external representation includes a software unit for the multimedia object display (e.g., any one or more of software

15 units (S.U.) 22-29 shown in Fig. 2), and a software unit (e.g., software unit 21 Fig. 2) for the text display. Each of the software units separately render the content for the visual multimedia object and the text area on the display screen by accessing the content from separate locations

20 within the network.

The visual multimedia object 302 can be of a static image type or a moving picture type, e.g., a video. The moving picture can be constructed by rapidly showing a sequence of static images such as in a movie which may show

25 a series of static frames at a rate of so many frames per second, e.g., 30 frames per second. All of these frames can be sent from a server. This represents how the real audio format MP3, or video format, are currently sent. However, sending so many frames for each second of display is

30 typically an expensive way to send such data. Another way

to send such multimedia data is to send a vector graphic
program, such as SVG or Macromedia Flash, from a server
which is then played by the browser. A third kind of
multimedia object is an animated GIF which is a program

5 which has certain characteristics which allows it to be
animated by the software unit. Regardless of what type of
moving picture is being sent - whether it is a sequence of
static images or a program such as SVG, Macromedia Flash, or
an animated GIF - it is always interpreted by a software

10 unit for the given multimedia object.

For the display of multimedia objects, a software
program is used such as Microsoft Multimedia Player,
RealNetworks (Real Audio and Real Video), QuickTime by
Apple, etc. In the user interface for such a player, a user

15 would input a filename of the moving picture and the program
would play it in a window. The multimedia program has user
interface controls such as a forward button, backward
button, fast forward button, fast reverse button, stop, and
play, etc. For a given type of multimedia object,

20 operations on the object such as play, rewind, etc., are
known in the art. It should be noted that any given media
player can only play the certain media types of files that
it can interpret.

In operation, a Web browser issues a get command (e.g.,

25 GET X.HTML) to get back the document named X.HTML. The
browser interprets the document, X.HTML, and determines that
it includes a multimedia object (e.g., a multimedia object
named obj1.xx where xx is the extension name which may be
dependent on the type of multimedia object, e.g., .GIF for a

30 GIF object type). The browser then issues a GET for the

multimedia object (e.g., GET obj1.xx) to get the object.
The Web browser now has the document X.HTML and the
multimedia object obj1.xx. The Web browser renders both of
them on the screen using the software unit for text to

5 render X.HTML and the appropriate software unit for
rendering the multimedia object obj1.xx depending upon the
type of multimedia object (e.g., .GIF, .MP3, .JPG, .AU,
.AVI, etc.). To accomplish this, the browser examines the
extension of the multimedia object to determine which

10 software unit is needed, e.g., a .GIF renderer, or a .MP3
renderer, etc., to run the multimedia object through to
render it. The client has the renderers, i.e., software
units, needed to interpret and render most types of
multimedia objects.

15   As previously discussed, a given multimedia object may
only be rendered for a relatively short period of time,
thereby appearing to the user as transient content. For
example, the user may request a new Web page that has a
different multimedia object embedded within or no multimedia

20 object at all, such that any multimedia object previously
rendered goes away when the new page is rendered. In
addition, a given multimedia object may be comprised of a
succession of different content so that it appears to the
user that different multimedia objects are being rendered in

25 succession.
       In order to assist the user in being able to view at a
later time transient content contained in a multimedia
object embedded within a Web page, a preferred embodiment of
the system, method, and program of the present invention

30 enables a Web browser to automatically keep a list of what

objects have arrived at the browser over a configurable
duration of time.

Referring again to Fig. 3, when the feature to save
transient content is set on, such as through a special
5   control or button 311 in the browser GUI or through a pull
down menu in the browser GUI, the browser automatically
stores each object without a user first having to select
each object to be stored. The time period (such as a
minute, five minutes, thirty minutes, etc.) for which a
10 browser keeps track of the objects can be configured
initially via a default time or later changed or set by the
user. The user can also set the duration manually by
selecting or deselecting control 311. The different
multimedia objects 331 - 335 that were rendered in the
15 multimedia region 302 are stored in a list 351 in memory
preferably at the client. The object names are stored in
chronological order with respect to a time in which they
were rendered. For some embodiments, the time rendered
and/or duration of time a given object was rendered may also
20 be displayed along with the object name. Furthermore, in
addition to, or in place of, the object name in the list,
the list may contain a thumbnail of the object, i.e., a
small region showing a static frame of the multimedia object
content.

25   The list is displayed when the multimedia region 302 of
the browser is selected by the user such as through a mouse
click. Upon a selection by the user of an object within the
list, the browser will render again the selected object from
local memory by utilizing the software unit associated with
30 the type of multimedia object selected. The controls –

play, rewind, stop, fast forward, etc., - enabled by the
specific software unit will be utilized in playing back the
selected object. When the object is selected, a menu opens
up with these controls for selection by the user enabling
5 the user to select the desired function such as play,
rewind, etc.

In addition, the displayed list 351 also displays
playback controls 360 such as stop 361, play 362, fast
forward 363, rewind 364 and forward skip 365 or reverse skip
10 366. For instance, if play 362 is selected, the browser
renders the first object 331 in the list and plays it using
the appropriate software unit for that type of object. If
the object has been played and the "play" button 362 is
still selected, the browser renders the next object in the
15 list 332 using its corresponding software unit. If the user
selects stop, a signal is sent to the software unit to stop
playing the object. If the user selects the forward skip
button 365 once, then the next object in the list, obj3.mp3
333, is highlighted. If the user selects the skip forward
20 button 365 repeatedly two more times, then obj5.jpg, 335, is
highlighted and automatically played or played when the play
button 362 is selected. As such, if play 362 is selected,
then obj5.jpg 335 is rendered using the appropriate software
unit. If rewind 364 is selected, then the previous object
25 334 in the list is played. When the object 334 has played,
each of the preceding objects 333-331 will be successively
highlighted and played until either the first object 331 in
the list has finished playing or the stop button 361 is
selected, in which case the object which was highlighted
30 when the stop button 361 was selected will remain

highlighted and become the current position. Through the
use of the playback controls 360, a user is able to
manipulate the playing back of the stored transient objects
at a rate as desired by a user, including a slower rate
5 which would be desirable for users having cognitive
disabilities.

As such, the browser maintains a list of all of the
objects that have been received and rendered within a
configurable duration of time, the time that the object was
10 initially rendered, and the time that it took to initially
play the object. The browser stores this list of objects,
and the objects themselves, in storage that is preferably
local to the browser. Depending upon the size of local
storage available at the client, local storage should be
15 adequate for a few minutes of saved multimedia objects. If
not, or if a longer time is specified, the browser may
utilized storage using a communication link to other
devices. For example, if the advertisement is a video, it
is easy to save locally since the video file is already in
20 the browser. If the advertisement is a rapid succession of
still frames, the old frames may not necessarily be stored
in the browser cache. In this situation where the dynamic
image is not in cache, a selection of the replay feature by
a user would cause an HTTP request to be sent to the server,
25 and the appropriate image(s) would be downloaded from the
server when they are replayed.

Although the above embodiment implements the present
invention at each client, other embodiments may be used that
implement the invention at a server. The following
30 describes an embodiment of the rewind and replay feature at

a server to access missed links that were dynamically and transiently displayed in browsers on a client side. Fig. 4 illustrates a network configuration 400 wherein client desktops 401 - 406 are connected to servers 407 - 409 which

5 in turn are connected to an advertisement server 410. In a preferred embodiment, the server 410 stores the multimedia advertisement objects in a last in first out (LIFO) queue. It should be noted that other embodiments could store the objects in other sequences including a first-in-first out

10 (FIFO) queue. As such, for the preferred embodiment, when a user selects the rewind feature of the invention to replay the missed advertisements, the last multimedia object that was previously displayed at the client and the last one to be saved is the first one to be replayed to the user. For

15 each activation by the user of the rewind button, the server sends a multimedia object from the LIFO queue with the specific controls to rewind or replay each separate multimedia object. That is, the server sends to the client the data (i.e., the multimedia object) and its corresponding

20 program or software unit to interpret the data, i.e., to play or rewind the multimedia object. Although the program to interpret the data normally is found at the client, in the embodiment herein described, it is sent from the server. As such, any play or rewind buttons would be part of the

25 multimedia object, or associated with the object, and displayed in the area of a document designed for the multimedia object. In other words, if implemented at the server, the server can take into account the screen real estate needed for the rewind and replay controls associated

30 with the multimedia objects. The documents at the server

are designed to take this into account. The placement and flow of the text allows space for such controls.

Fig. 5 displays an advertisement 520 in a window 501 that can be incorporated in the browser or in a separate

5 window. The previous or the next advertisement can be accessed via single click on the left arrow 522 or the right arrow 523 at the client side (e.g. clients 401-406, Fig. 4). By selecting either the left or the right arrow (522, 523), a signal is sent to the appropriate server 407, 408, or 409.

10 When selected, the left and right arrows 522, 523 will cause the server to move in different directions (forward or backward) through the queue of stored multimedia objects in order to retrieve a previous or next multimedia object. Servers 407 - 409 contain replicates of the original

15 advertisements at advertisement server 410 in order to balance the incoming network requests coming from clients for replaying the advertisements. The appropriate server will send the advertisement from the queue to be displayed on the client side. Thus the rewind feature is implemented

20 at the server side (server 407-409 or the advertisement server 410) such that the previously dynamically displayed messages or missed links can be displayed at the client side. In another preferred embodiment, the advertisement server is connected to the client directly.

25

The preferred embodiments may be implemented as a method, system, or article of manufacture using standard programming and/or engineering techniques to produce software, firmware, hardware, or any combination thereof.

30 The term "article of manufacture" (or alternatively,

"computer program product") as used herein is intended to encompass data, instructions, program code, and/or one or more computer programs, and/or data files accessible from one or more computer usable devices, carriers, or media.

5 Examples of computer usable mediums include, but are not limited to: nonvolatile, hard-coded type mediums such as read only memories (ROMs) or erasable, electrically programmable read only memories (EEPROMs), recordable type mediums such as floppy disks, hard disk drives and CD-ROMS,

10 and transmission type mediums such as digital and analog communication links, or any signal bearing medium.

The foregoing description of the preferred embodiments of the invention has been presented for the purposes of illustration and description. It is not intended to be

15 exhaustive or to limit the invention to the precise form disclosed. Many modification and variations are possible in light of the above teaching. For example, although preferred embodiments of the invention have been described in terms of the Internet, other network environments

20 including but not limited to wide area networks, intranets, and dial up connectivity systems using any network protocol that provides basic data transfer mechanisms may be used.

Also, preferred embodiments were described with respect to the HTTP protocol for transmitting documents between

25 computers within a network. However, those skilled in the art will appreciate that the preferred embodiments may apply to any communication protocol for allowing a client to request and access files in a network environment.

In preferred embodiments, the documents or objects

30 ("files") being retrieved were identified by a URL address

and may be located on different servers connected over a
common network such as the Internet. In alternative
embodiments, any file addressing scheme may be used,
including a file pathname indicating the location of a file

5 in storage.

Preferred embodiments were described with respect to a
browser program for displaying files downloaded from over a
network, such as the Internet. However, in alternative
embodiments, the browser program may be any viewer program,

10 not just Internet Web browsers, that are capable of
accessing and displaying locally files retrieved from a
server over a network.

The preferred embodiment has been described with
dynamic advertisements (multimedia objects) associated with

15 hyperlinks. This is a common way of displaying dynamic
advertisements on a browser. However, there are other ways
now (and in the future that may be developed) to display
dynamic advertisements or multimedia objects on a browser.
In the situation where advertisements are directly displayed

20 in a browser without the aid of a hyperlink embedded within
a HTML page that is downloaded by the browser software, the
method of the invention can still be applied by various
mechanisms. These would comprise identifying and clipping
the region associated with dynamic advertisements; saving

25 them over time; optionally associating artificially created
identifying tags with these saved entities when needed; and
finally displaying them under user control at a later time.
Depending on whether the method is performed at the client
or server, variations of the method could be used. The

30 essence of the invention is to display dynamic images in a

web page under user control. The invention is applicable to
all dynamic images regardless of whether or not hyperlinks
are associated with the multimedia objects.

     A multimedia object can also consist of a separate
5 frame in the same browser that, on a timer, updated its
content and linked to the content via the DOM or a scripting
language, or any other programmable segment, which
dynamically changed an HTML object and its HREF link.

     It is intended that the scope of the invention be
10 limited not by this detailed description, but rather by the
claims appended hereto. The above specification, examples
and data provide a complete description of the manufacture
and use of the system, method, and article of manufacture,
i.e., computer program product, of the invention. Since
15 many embodiments of the invention can be made without
departing from the spirit and scope of the invention, the
invention resides in the claims hereinafter appended.

     Having thus described the invention, what we claim as
new and desire to secure by Letters Patent is set forth in
20 the following claims.